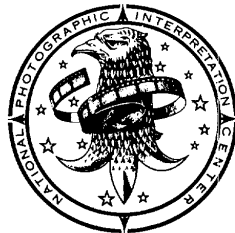


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Basic Imagery Interpretation Report



NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

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MOSCOW ABM LAUNCH COMPLEX E33

BE NONE

DEPLOYED AMM FACILITIES

USSR

MAY 1969

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INSTALLATION OR ACTIVITY NAME Moscow ABM Launch Complex E33				COUNTRY UR	
UTM COORDINATES NA	GEOGRAPHIC COORDINATES 56-20N 036-47E	CATEGORY None	BE NUMBER None	COMIREX NO. None	NIETS NO. None
MAP REFERENCE ACIC. USATC 200, Sheet M0154-22HL, 4th ed, Mar 68, scale 1:200,000 (SECRET)					
LATEST IMAGERY USED None		NEGATION DATE (if required) None			

ABSTRACT

ABM Launch Complex E33, one of seven ABM complexes around Moscow, consists of a launch area, which has two TRY ADDS, 16 launch positions, and onsite operational support facilities; and a support and housing facility. Construction of the complex was initiated in [] and is now virtually complete.

This report describes the development of the complex as observed on [] photography from [] Large-scale photographs from Mission []

All significant structures and features are annotated on the photography and tabulated with mensuration. A chronology of GALOSH missile canisters observed at the complex through [] is included.

INTRODUCTION

ABM Launch Complex E33 is approximately 45 nautical miles (nm) northwest of Moscow, USSR (Figure 1). The complex is in a heavily wooded area at 630 feet above mean sea level and is road served only. It consists of a launch area, which contains a dual TRY ADDS (one TRY ADDS of first-generation construction and one exhibiting second-generation development), and a support and housing facility. The launch area occupies the north end of Moscow SAM Site E33-1. Construction of Complex E33 was initiated during [] concurrently with the construction of Moscow ABM Launch Complexes E05, E15, and E24, as well as the Borovsk ABM Support Facility. As of the latest []

In addition to the other six ABM launch complexes, the Borovsk ABM Support Facility, the Naro-Fominsk ABM/Space Tracking Radar Facility, and the Chekhov Suspect ABM-Associated Electronic Facility Under Construction are in the Moscow area. Other ABM-related installations in the USSR (Figure 2) are the ABM/space tracking radar facilities at Olenegorsk and Skruna, the Mishelevka ASAT/Space Tracking Radar Facility, and the Sary-Shagan Missile Test Center (SSMTC), the principal test range for Soviet ABM R&D and training.

BASIC DESCRIPTION

The principal components of ABM Launch Complex E33 are a launch area (Figure 3 and Table 1), which contains two TRY ADDS (missile-guidance and target-tracking radar facilities), 16 GALOSH ABM launch positions, and onsite operational support facilities; and a support and housing facility.

Launch Area

The triple-fenced launch area is comprised of a dual TRY ADDS, each with eight associated GALOSH ABM launch positions, and the operational support facilities. Each TRY ADDS consists of three principal buildings which are arranged in a triangular configuration and contain the onsite radars.

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When Moscow SAM Site E33-1 was observed on [] photography in early [] there was no evidence of ABM launch area construction. Poor imagery prohibited identification of four externally complete multistory apartment-type buildings in the support and housing facility until []. On this coverage, the access road for the ABM launch area was observed to be in an initial stage of construction. By early [] clearings for the TRY ADDS building foundation excavations were visible.

TRY ADDS 1.

Construction activity at TRY ADDS 1 (BE Number [] 56-20-24N 036-47-20E) was started between early [] and early []. A more exact date cannot be established due to gaps in photographic coverage. By late [] the TRY ADDS buildings appeared to be complete with the exception of radomes. On the same coverage, major components of the operational support facilities in the launch area, including a T-shaped building, were observed. By the beginning of [] radome construction

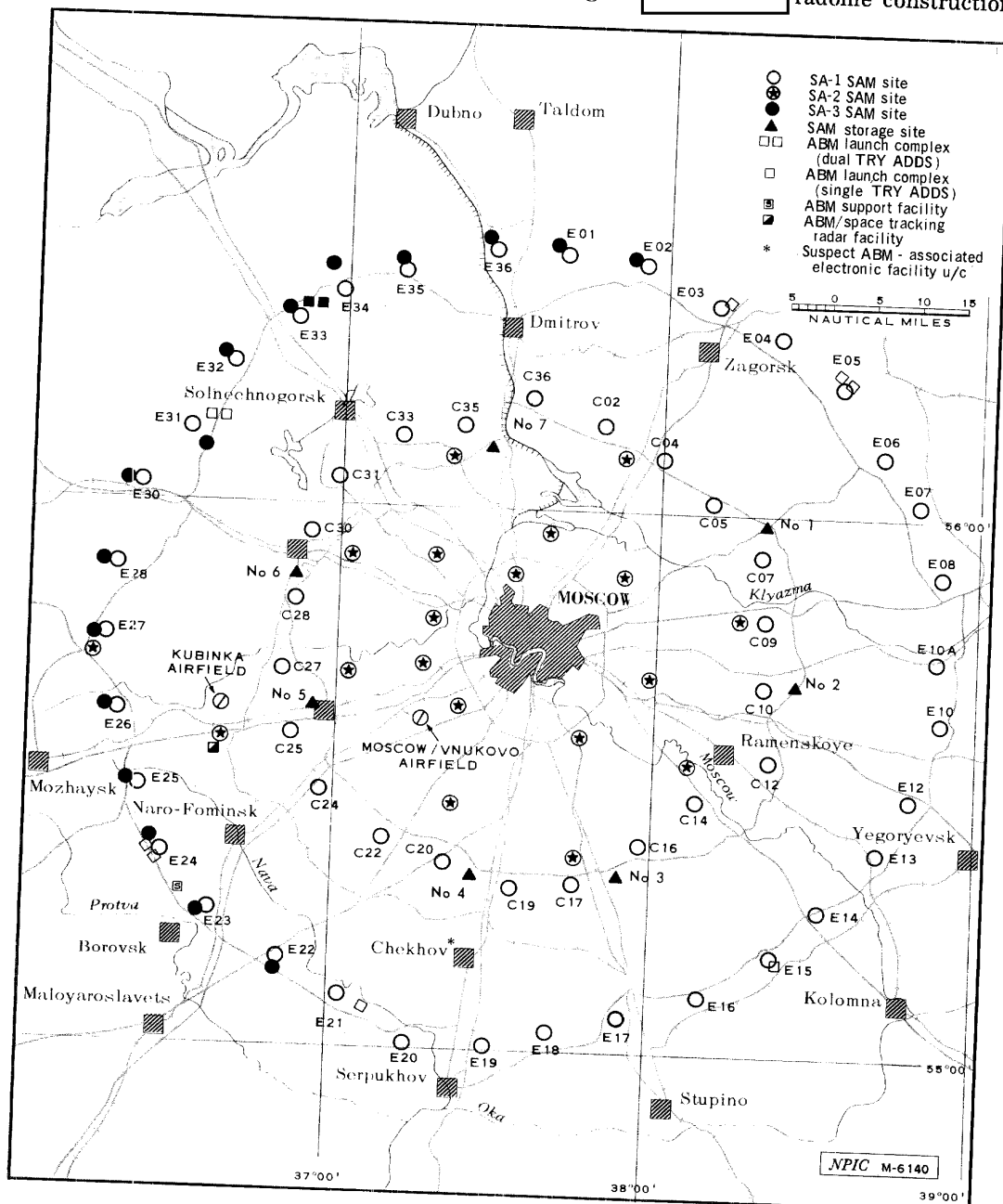


FIGURE 1. LOCATION MAP.

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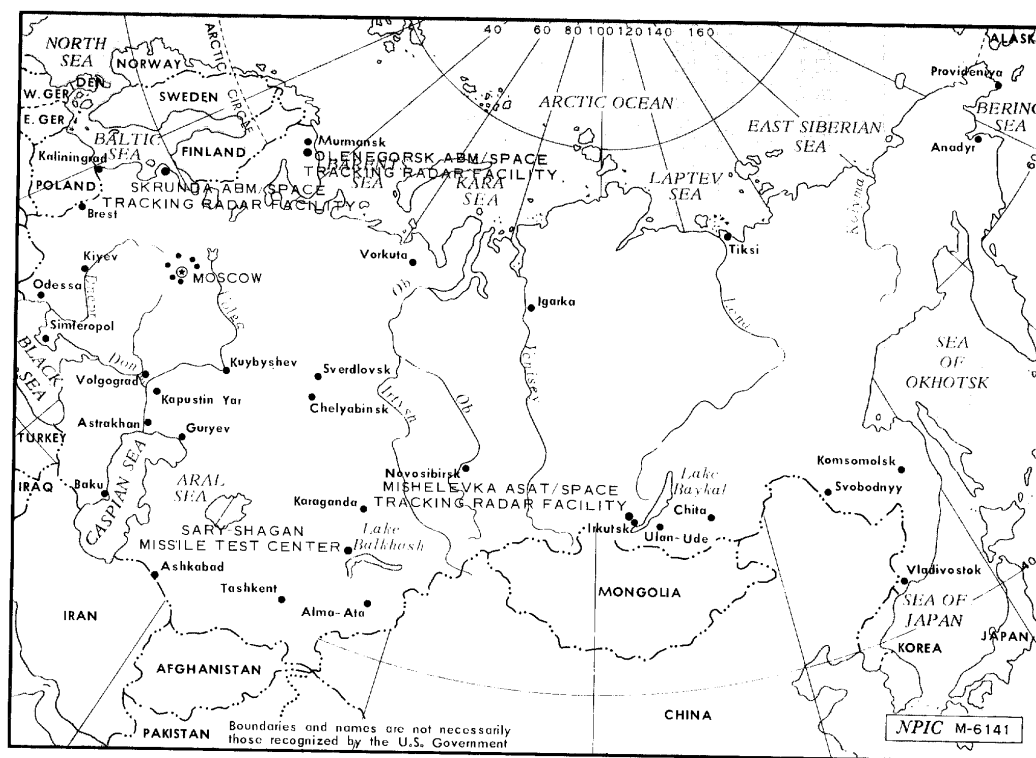


FIGURE 2. LOCATIONS OF OTHER ABM-RELATED FACILITIES IN USSR.

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had begun at all three buildings in the TRY ADDS. However, it was not until early [] that a 60-foot-diameter solid parabolic antenna was observed on the ground adjacent to the east wall of Building A. In late [] the radomes on all three of the TRY ADDS buildings were externally complete. On the same coverage, foundation preparations for the launch positions were identified. Also, a large lattice tower was discerned just southeast of the T-shaped building and between Launch Positions 1B1 and 2C4. Similar towers have been noted at all of the Moscow ABM complexes which have reached a comparable stage of construction, although the position of the tower is different at each complex. The tower is not of the same design as those associated with calibration of the TRY ADDS (Figure 4), and its function is presently unknown. In [] the foundation for a large building of unidentified function was observed under construction adjacent to the T-shaped building. At the same time, a square loop road was visible northwest of Building A. By late [] a clearing along the loop road was discernible, and in early [] the foundation for a missile checkout building was identified.

TRY ADDS 1 Launch Positions

Each of the GALOSH launch positions at TRY ADDS 1 is connected to its respective small building (TRY ADDS Buildings B and C) by an aboveground conduit, which terminates, at the launch position end, in a small structure approximately 45 feet from the launcher-erector. This arrangement is common to all first-generation TRY ADDS at the Moscow ABM complexes. No physical connection is apparent between the terminating structure and the launcher-erector.

The installation of a launcher-erector at Launch Position 1B1 may have started as early as the beginning of []. A launcher-erector consists of two large vertical arms mounted on a turntable, through which the GALOSH canister is driven on a prime-mover-drawn trailer. The alignment of the transporter with the launcher-erector is achieved by the use of two parallel vehicle indices which extend about 70 to 80 feet from each side of the launcher-erector. Once the canister is engaged in the launcher-

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Table 1. Data on Structures in Launch Area
(Item numbers are keyed to Figure 3)

Item	Description	Dimensions*	Item	Description	Dimensions*
25X1 1	Security bldg		19	Bldg	
2	Poss admin bldg		20	Bldg	
3	Substation		21	Lattice tower	
4	Heatplant		a	Platform at top	
5	Vehicle maintenance bldg		22	Shed	
6	Missile checkout bldg		23	Vehicle shed	
7	Cooling unit		24	Bldg	
8	Pump bldgs (2)		25	Bldg	
9	Buried tanks (3)		26	Cooling unit	
10	Bldg A, TRY ADDS 1		27	Bldg A, TRY ADDS 2	
	Radome		a	Radome	
11	Bldg D, TRY ADDS 1		b	Environmental	
12	Bldg			control wings (2)	
13	Bldg B, TRY ADDS 1		c	Environmental	
a	Radome			control structure	
14	Bldg C, TRY ADDS 1		28	Bldg B, TRY ADDS 2	
a	Radome		a	Radome	
15	Bldgs u/c (2)		29	Bldg C, TRY ADDS 2	
16	Structures (8)		a	Radome	
17	T-shaped earth-mounded bldg		30	Structures (8)	
a	Crossbar		31	Cable vaults (8)	
25X1 b	Stem		32	Calibration towers (2)	
c	High bay		a	Tops	
18	Unidentified bldg		33	Suspect missile launch pad	

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erector, the prime mover and trailer are driven through. The canister can then be maneuvered in azimuth and elevation. By the end of [] the launcher-erector with vehicle indices at Launch Position 1B1 was apparently complete; another launcher-erector, at 1B2, was at least partially assembled; and assembly of a third launcher-erector may have been underway at Position 1C2, where vehicle indices were also present. Vehicle indices, but not launcher-erectors, were apparent at Positions 1B4, 1C1, and possibly at 1C3. No activity was evident at 1B3 or 1C4. On small-scale imagery of [] a launcher-erector was tentatively identified at each of the eight launch positions at TRY ADDS 1. On large-scale coverage of [] launcher-erectors and vehicle indices at the eight launch positions were evident. At the same time, the missile checkout building was noted to be virtually complete, and three calibration towers were observed within the adjacent SA-1 launch area. In addition, the road had been extended past the T-shaped building to form a portion of a loop road. By [] the loop road was substantially complete and identified as a suspect launch pad, based upon its physical and dimensional similarities to Launch Positions B3 and B4, Launch Complex B, SSMTC. Similar roads are present at ABM Launch Complexes E24 and E05. A loop road of a different configuration is present at Complex E31.

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A GALOSH missile canister was first observed at Complex E33, in TRY ADDS 1, on [] This photography, combined with photography of [] revealed possible acceptance testing of the launcher-erector mechanisms, as a canister was seen in different launch positions on the two coverages. On [] two GALOSH missile canisters were observed at the complex, marking the first instance in which two canisters were seen at the same time at a Moscow ABM complex. The following is a chronology of GALOSH missile canister observations at TRY ADDS 1:

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<u>Date Canister Seen</u>	<u>Launch Position</u>	<u>Remarks</u>
[]	1B2	Engaged in launcher-erector; parallel to vehicle indices; elevated
	1B3	Engaged in launcher-erector
	1B2	Engaged in launcher-erector; perpendicular to vehicle indices; elevated
	1C2	Engaged in launcher-erector; parallel to vehicle indices; elevated

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TRY ADDS 2.

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Ground scarring for TRY ADDS 2 [] 56-20-34N 036-47-46E) was first discernible on small-scale [] photography of [] By the beginning of [] clearings for TRY ADDS Buildings B and C and an excavation for the Building A foundation were evident. By [] these buildings were substantially complete, although the radomes were not present. In addition, two wing-type structures, not previously observed in TRY ADDS construction, were noted extending from the corners of the northwest side of Building A, parallel to the long axis of the building. A structure between these wing structures was also noted. These structures probably duplicate the environmental control function which Building D at TRY ADDS 1 is believed to perform. By [] radome construction was underway at all three TRY ADDS 2 buildings. At the same time, work had begun on some of the launch positions surrounding the small TRY ADDS buildings (B and C)—on two launch positions near

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Building B and at all four launch positions associated with Building C. By late [] 25X1
[] the radomes on Buildings B and C appeared complete, and by early [] 25X1
[] they were definitely complete. On large-scale coverage of [] a 60-25X1
foot-diameter solid parabolic antenna was observed on the ground near Building A. On
the same coverage, eight probable foundations for the launcher-erector mechanisms were
visible in the launch area. In [] the radome on Building A appeared to
be complete, and the antenna presumably had been installed within. This occurrence
marked the first time an ABM complex was observed in which all radomes in the dual
TRY ADDS appeared to be externally complete. A feature of radome construction at TRY
ADDS 2 was the attachment of the capping section to the next-larger section before their
emplacement as a unit upon the other sections. At TRY ADDS 1, the emplacement of
the capping section alone comprised the final assembly of the radome on Building A.

TRY ADDS 2 Launch Positions.

At TRY ADDS 2, the conduits from the small TRY ADDS buildings (B and C) to the
launch positions are diverted underground approximately 125 feet from the launcher-erectors.
The cable vaults are probably analogous to the conduit-terminating structures present
in TRY ADDS 1. This conduit arrangement is characteristic of second generation
TRY ADDS construction.

[] 25X1
By late [] launcher-erectors had been constructed at Launch Positions
2B4 and 2C4. In [] Launch Positions 2B1, 2C1, 2C2, and 2C3 appeared to have
vehicle indices and belowground turntable mechanisms in place; Launch Positions 2B2
and 2B3 were in an initial stage of construction. In [] launcher-erectors had been 25X1
installed at Launch Positions 2C1 and 2C3. At Launch Position 2C2, two individual launcher-
erector arms were noted lying on the ground, apparently ready for installation. Launch
Positions 2B1, 2B2, and 2B3, although lacking launcher-erector arms, appeared to be
otherwise complete.

Operational Support Facilities.

The on-site operational support facilities consist of the T-shaped earth-mounded building
previously mentioned, the missile checkout building, a heatplant, a substation, a
security building, and support buildings. The missile checkout building is situated on
the square loop road northwest of Building A, TRY ADDS 1. The security building and
the substation are at the entrance to the launch area. Also near the entrance are a possible
administration building, a vehicle maintenance building, and the heatplant. Between
the two TRY ADDS is the T-shaped building and a large rectangular building of undetermined
function. The T-shaped building was evident as early as [] and appeared 25X1
externally complete in [] Similar T-shaped earth-mounded buildings are present
at three of the other Moscow ABM launch complexes, at the Naro-Fominsk ABM/Space
Tracking Radar Facility, and in the YO-YO radar area at six of the SA-1 SAM sites on
Moscow's C ring.

Support and Housing Facility

The support and housing facility (Figure 5 and Table 2) associated with ABM Complex
E33 is approximately 1.2 nm southwest of the ABM launch area. The facility is
utilized by the adjacent SA-1 and SA-3 SAM sites as well as by the ABM launch complex.
The distinguishing feature of this and other such support facilities associated with ABM
launch complexes is the presence of multistory apartment-type buildings, which predate
the start of construction of the ABM launch facilities (Table 3). [] 25X1

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Table 3. Chronology of Launch Complex Development

Multistory apartment-type buildings present in support and housing facility
Launch area access road under construction
TRY ADDS 1 under construction
T-shaped building under construction
TRY ADDS 2 under construction
Antenna for Building A, TRY ADDS 1, observed in complex
Radomes observed complete at TRY ADDS 1
Launch positions first observed under construction
Large unidentified building under construction
Missile checkout building under construction
Installation of launcher-erectors
Antenna for Building A, TRY ADDS 2, observed in complex
Radomes observed complete at TRY ADDS 2
GALOSH ABM canister present in complex

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REFERENCES

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MAPS OR CHARTS

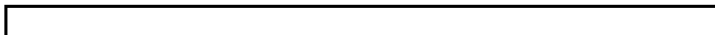
AGIC. US Air Target Chart, Series 200, Sheet M0154-22HL, 4th ed, Mar 68, scale 1:200,000 (SECRET)

DOCUMENTS

1. NPIC. Probable ABM Launch Complex E33, Moskva, USSR, Mar 67 (TOP SECRET)

REQUIREMENT

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